

# Preparing for a Coronary Angiogram or Angioplasty

---

plus Treatment Options

## Vancouver General Hospital

899 West 12th Avenue  
Vancouver BC V5Z 1M9  
Tel: 604-875-4111

## Lions Gate Hospital

231 East 15th Street  
North Vancouver BC V7L 2L7  
Tel: 604-988-3131

## Heart Centre

St. Paul's Hospital  
1081 Burrard Street  
Vancouver BC V6Z 1Y6  
Tel: 604-682-2344

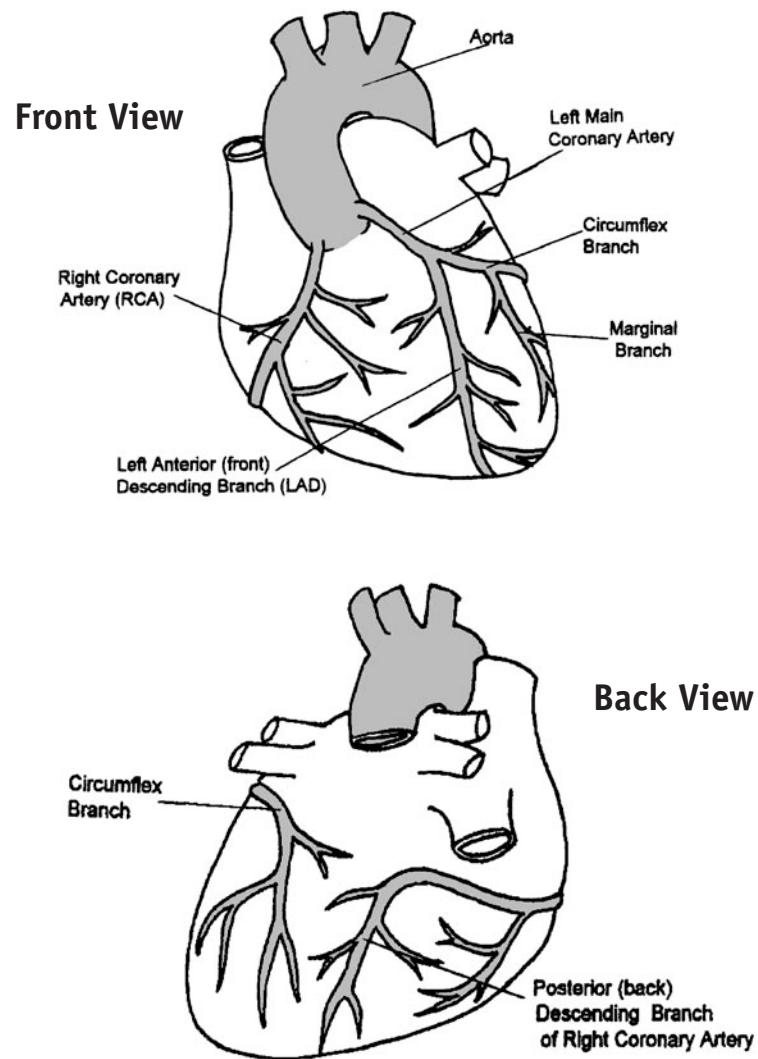


How you want to be treated.

## Table of Contents

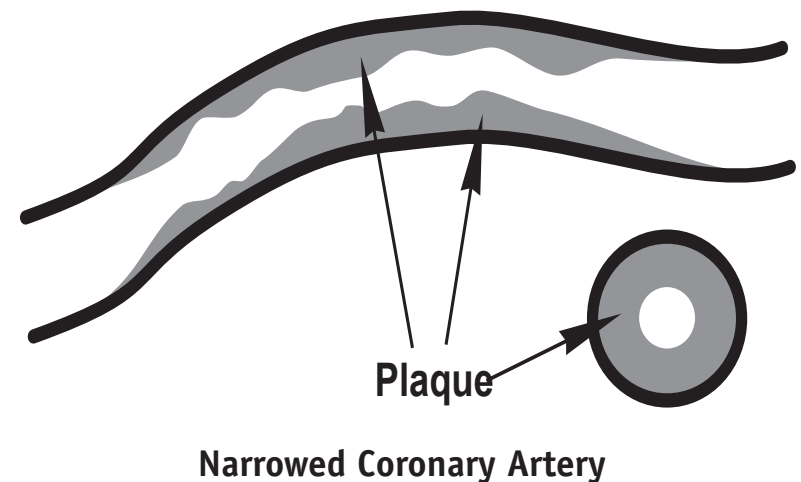
The heart and coronary arteries .....	1
Why am I having an angiogram? .....	2
Some Common Feelings.....	3
Preparation instructions.....	4
During the angiogram .....	7
After the angiogram .....	8
<b>Treatment Options .....</b>	<b>11</b>
1. Advice about Medications .....	12
2. Percutaneous Coronary Intervention .....	14
a) Balloon angioplasty.....	15
b) Stent .....	16
3. Coronary Artery Bypass Surgery.....	17
<b>Community and Other Resources .....</b>	<b>19</b>
<b>Directions and Maps .....</b>	<b>23</b>

## The Heart and Coronary Arteries



## Why am I having an Angiogram?

- ◆ The heart is about the size of your fist. It has the job of pumping oxygen-rich blood throughout your body.
- ◆ To meet this demand, the heart muscle needs its own rich supply of blood. It is the coronary (heart) arteries that supply your heart muscle with oxygen-rich blood.
- ◆ You have three main coronary arteries. One on the right and two on the left (see page 1).
- ◆ Sometimes your coronary arteries become narrow or blocked; this is called Coronary Artery Disease (CAD). As a result, your heart does not receive enough oxygen.



- ◆ When your heart does not receive enough oxygen, you may experience one or more of the following symptoms:
  - Chest pain, pressure or discomfort
  - Arm pain or heaviness
  - A tightness in your throat, neck and/or jaw
  - Shortness of breath
  - A feeling of indigestion
- ◆ You are having this angiogram because coronary artery disease is suspected.
- ◆ An angiogram is a diagnostic test that involves injecting dye into your coronary arteries to see if there are blockages or narrowings while recording an x-ray movie.
- ◆ When you come for your procedure, your nurse and doctor will give you more information about heart disease in general, your condition in particular, and ways to live a “heart-healthy” way.

## Some Common Feelings

Sometimes people with heart conditions feel sad, down, or just not interested in life.

Sometimes they feel anxious or nervous. If you are bothered by these feelings, call your family doctor. Help is available. Your overall health and your heart health will improve if you get help.

## Preparation Instructions

Check off each box as you prepare to come to the hospital. Your angiogram may be **cancelled or rescheduled if you are not prepared.**

### Communication:

- You **must** bring an interpreter with you if you do not speak English.
- Bring** this booklet.

### Medications:

- Please bring all your medicines in their original bottles.
- You may need to stop, start, or adjust some of your medicines before the procedure. You will receive a letter with important instructions about taking your medications, and your appointment date. Please read this information carefully.
- See page 13 for more advice about cardiac medicines.

### Food:

- No** solid food after midnight the night before the angiogram. Your angiogram may be cancelled if you eat after this time.  
Date: \_\_\_\_\_
- Plenty of Clear Fluids Only** up to 3 hours before the scheduled angiogram.  
Date and time: \_\_\_\_\_

If you receive instructions to shave the groin area, follow these instructions. If you don't get instructions to shave the area, it means the nurse will do it for you when you came to the hospital.

### Valuables:

- Do Not** bring cash, valuables or a lot of personal items and clothing
- Remove all jewellery and nail polish. You may keep your glasses, hearing aide(s) and denture(s) on during the angiogram.
- Wear loose-fitting clothes and flat shoes.

### Planning for your discharge:

- No** driving in the first 24 hours. Unnecessary moving can cause bleeding from the femoral (groin) artery in the leg.
- We strongly recommend you have someone accompany you when you leave the hospital and that you make arrangements for someone to stay with you overnight after the angiogram. This is for your safety in case you start bleeding. If you cannot arrange this, your procedure may have to be re-booked.
- If you have any more questions, please **call the booking coordinator at:**  
**SPH: 604-806-8400**  
**VGH: 604-875-4669**  
**Your Lion's Gate cardiologist's office.**

### When you are in the hospital:

- ◆ Inform the cardiologist or nurse if you have a known allergy to x-ray dye, iodine, shellfish, or any other allergies.
- ◆ You will change into a hospital gown.
- ◆ The nurse will ask you some questions about your health history.
- ◆ An electrocardiogram (ECG) will be done. This is a painless recording of the heart's electrical activity and rhythm to detect irregular heartbeats and/or heart damage.
- ◆ An intravenous (IV) will be inserted, IV fluids will be started and blood drawn for routine tests (if not done already).
- ◆ The nurse will shave around your groin and upper thigh area.
- ◆ You may watch a video about the angiogram.
- ◆ You may receive medication to help you relax just before the angiogram.

## During the Angiogram

- ◆ You will go to the catheterization lab (cath lab) for the angiogram.
- ◆ You will be awake during the procedure.
- ◆ You will lie on an x-ray table. The nurse or technician will connect you to a heart monitor.
- ◆ The nurse will clean the area chosen for the angiogram with a cleaning solution. **Do Not** touch this area once it is cleaned.
- ◆ The nurse will place a sterile (germ-free) drape over you to keep the area clean.
- ◆ The cardiologist will inject a local anesthetic (freezing) into the groin area.
- ◆ Once the area is frozen, the cardiologist will insert a sheath (like a large IV) into the femoral artery (located in the groin area).
- ◆ Through this sheath, the cardiologist will guide small catheters (tubes) into the coronary arteries.
- ◆ Small amounts of dye will be injected through these catheters to see the coronary arteries. **It Is Normal** to feel a warm sensation at this time.
- ◆ Be prepared to hold your breath and give a deep cough if the cardiologist asks you.
- ◆ It is normal to feel some mild discomforts during the angiogram. **However, Tell The Cardiologist** if you are uncomfortable or having pain.

- ◆ Once we have enough pictures of your coronary (heart) arteries, the cardiologist will remove the guide tubes but leave the sheath in.
- ◆ You will return to the recovery area.

## After the Angiogram

- ◆ The nurse may connect you to the heart monitor.
- ◆ The nurse will check your blood pressure, pulse and heart rhythm frequently.
- ◆ The nurse will check your groin and feet pulses frequently.
- ◆ You may be connected to IV fluids to help clear the x-ray dye from your kidneys.
- ◆ You are encouraged to drink a lot of clear fluids to help clear the x-ray dye from your kidneys.
- ◆ **You May Not Eat** until the nurse tells you it is ok. Eating too soon may cause complications.
- ◆ It is normal to feel discomforts after the angiogram. However, it is important to **Tell The Nurse** if you are uncomfortable or having pain.

## While the femoral sheath is in:

### You May Not:

- bend the leg the sheath is in
- lift your head off the pillow or
- move in bed by yourself
- ◆ Any of the above actions may cause bleeding and damage to your artery.
- ◆ Call the nurse to help you move safely if your back becomes uncomfortable.

## Taking the sheath out:

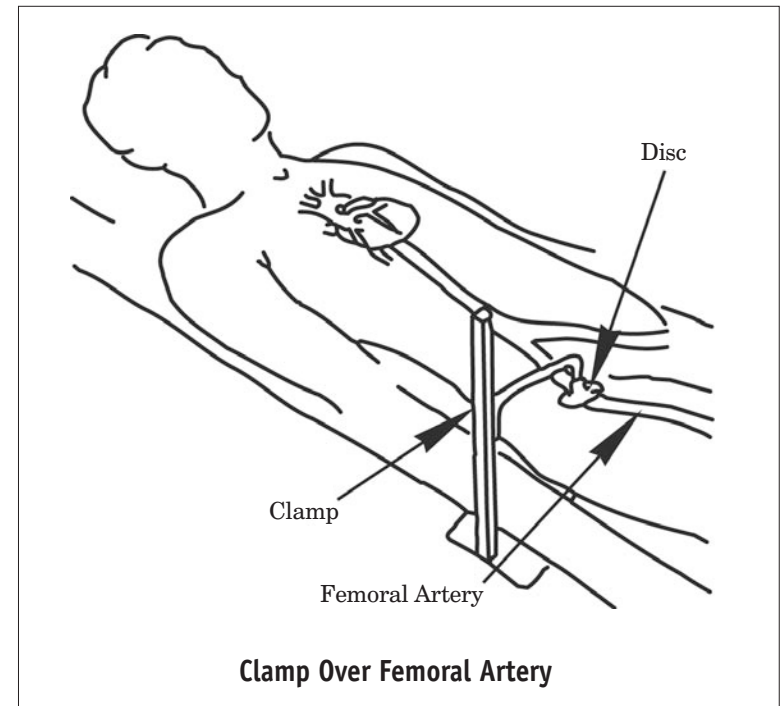
- ◆ The nurse will remove the sheath from your femoral (groin) artery when it is safe (minutes to a few hours after the procedure).

## Just before the sheath comes out:

- ◆ The nurse will flatten your bed.
- ◆ The nurse will help you move closer to the edge of the bed and may position you with pillows.
- ◆ The nurse may give you medication to help you relax and feel comfortable just before the sheath comes out.

## As the sheath comes out:

- ◆ After the sheath is out, the nurse will apply a disc over the sheath site with a clamp to stop the bleeding.
- ◆ The nurse will check your blood pressure, pulse and heart rhythm frequently.
- ◆ The nurse will check your groin area and feet pulses frequently.
- ◆ The clamp will stay on until the bleeding has stopped.



### You May Not:

- bend the leg the sheath is in
- lift your head off the pillow or
- move in bed by yourself
- ◆ If you do any of the above actions you may cause bleeding and damage to your artery.

## After the clamp is off:

- ◆ The nurse will apply a bandage over the site.
- ◆ The nurse may place a sandbag over the site to reinforce the bandage.
- ◆ **You May Not Bend** your leg for 2 hours after the clamp is off. Bending your leg may cause bleeding to start in the artery.

- ◆ **Call The Nurse** if you feel a warm, wet feeling or pressure or a sharp pain where the sheath was. You may be bleeding.
- ◆ It is normal to feel some discomforts after the angiogram. However, **Tell The Nurse** if you are uncomfortable or having pain.
- ◆ **You May Not Eat** until the nurse tells you it is ok. Eating too soon may cause complications.

## Treatment Options

- ◆ After the angiogram, the cardiologist will tell you what your angiogram showed.
- ◆ If you have normal coronary arteries, you may not need treatment.
- ◆ If you have abnormal coronary arteries, there are four options for treatment:
  1. medications
  2. percutaneous coronary intervention (PCI)
  3. coronary artery bypass surgery or a combination of the last three treatments may be necessary
  4. no treatment
- ◆ Your cardiologist will discuss with you which treatment is best for you.
- ◆ Here is some information about these options:

## 1. Medications

For your safety, we recommend that you:

- ◆ **Know** the names, doses and how often you take all the medications prescribed to you by your doctor.
- ◆ **Know Why** you are taking all your medications.
- ◆ **Talk** with your doctor before taking any herbal supplements.
- ◆ **Always** bring a current list of your medications and the correct pill bottles each time you come to the hospital. Your community pharmacist is a good resource for more information.

### Some Common Types of Cardiac Medications

- ◆ **ACE Inhibitor:** Lowers blood pressure, improves heart function, reduces risk of heart attacks and prolongs life. Examples: captopril (Capoten®), enalapril (Vasotec®) and ramipril (Altace®).
- ◆ **Anticoagulant** (“blood thinner”): Prevents clots in blood vessels and many other conditions, reduces risk of heart attacks and prolongs life. Examples: warfarin (Coumadin®).
  - Warfarin (Coumadin®) **Is Not** a substitute for Aspirin or clopidogrel (Plavix®).

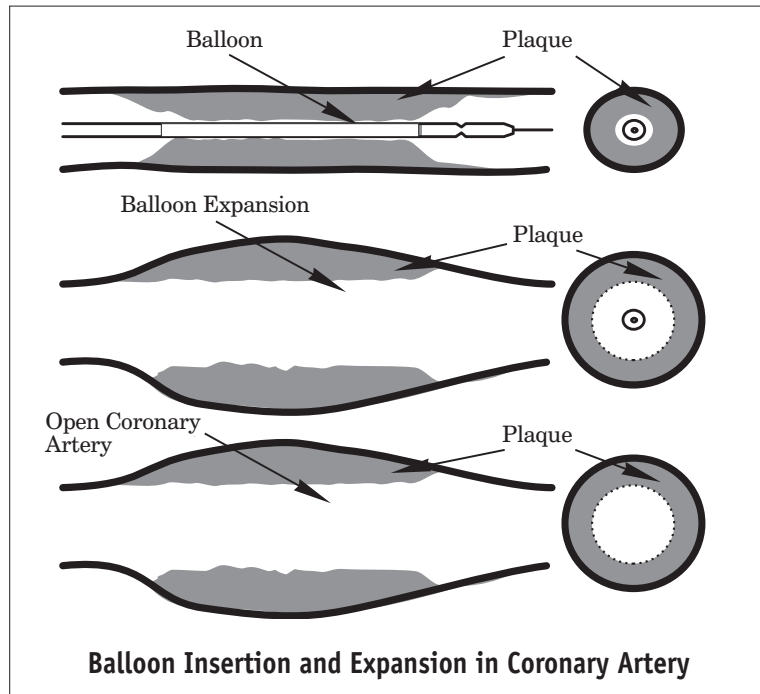
- ◆ **Antiplatelet** (“blood thinner”): Prevents clots in blood vessels, reduces risk of heart attacks, prevents clots in newly placed stents and prolongs life. Examples: Aspirin (ASA) and clopidogrel (Plavix®).
  - **Do Not Stop** Aspirin (ASA) without asking your cardiologist.
  - **Do Not Stop** clopidogrel (Plavix®) before your prescription is finished without asking your cardiologist.
- ◆ **ARB** (Angiotensin Receptor Blocker): Lowers blood pressure, improves heart function and can be used as a substitute for ACE Inhibitors. Examples: candesartan (Atacand®), losartan (Cozaar®) and valsartan (Diovan®).
- ◆ **Beta Blocker**: Lowers blood pressure and heart rate, reduces angina, improves heart function, reduces risk of heart attacks and prolongs life. Examples: acebutolol (Monitan®), atenolol (Tenormin®) and metoprolol (Lopressor/Betaloc®).
- ◆ **Calcium Channel Blocker**: Helps prevent angina, lowers blood pressure and can be used to control heart rate. Examples: amlodipine (Norvasc®), diltiazem (Cardizem®), nifedipine (Adalat®), verapamil (Isoptin®) and felodipine (Renedil®).
- ◆ **Lipid-Lowering Agent**: Lowers cholesterol and other fats in the blood, reduces risk of heart attacks and prolongs life. Examples: atorvastatin (Lipitor®), lovastatin (Mevacor®), pravastatin (Pravachol®), simvastatin (Zocor®), gemfibrozil (Lopid®) and niacin (Antivert®).

## 2. Percutaneous Coronary Intervention (PCI)

- ◆ If needed, and you agree, a PCI may be done at the same time as the angiogram or on another day.
- ◆ There are different types of PCI that can be done individually or in combination. Two common procedures are balloon angioplasty and stenting.
- ◆ Your cardiologist will discuss with you which PCI is best for you, depending on the angiogram results.

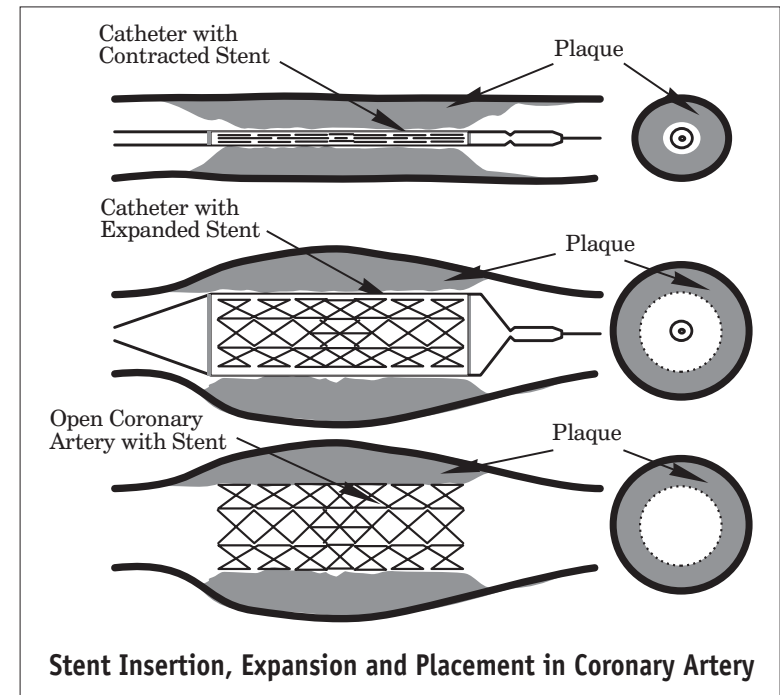
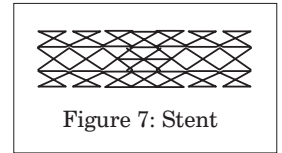
## a) Balloon Angioplasty

- ◆ Balloon angioplasty pushes the fatty plaque against the artery wall to make more room for blood flow.
- ◆ This improved blood flow through the artery reduces the risk of heart attacks and sudden stopping of the heart.
- ◆ The cardiologist inserts the catheter (tube) with a balloon at the tip through the femoral (groin) artery all the way up to the coronary (heart) arteries.
- ◆ Once the catheter is at the site of the blockage, the balloon at the tip of the catheter is inflated and deflated until the blockage is successfully pushed out of the way.
- ◆ When the narrowed artery is opened, normal blood flow is restored.
- ◆ Preparation instructions and events during and after the procedure are similar to the angiogram.



## b) Stent

- ◆ A stent is a small, expandable wire mesh tube used to prop open an artery that has been opened by balloon angioplasty.
- ◆ The procedure is similar to balloon angioplasty except after inserting a balloon-tipped catheter, a stent-tipped catheter is used.
- ◆ The stent stays in the artery permanently and holds it open to improve blood flow to the heart muscle and relieve symptoms such as angina (chest pain).
- ◆ Different stents are used depending on certain features of the artery blockage (ask your cardiologist).



- ◆ Stented arteries can narrow or block again. This is called restenosis. It is important to take the antiplatelet medications prescribed to you by the cardiologist because they will help prevent this.
- ◆ Preparation instructions and events during and after the procedure are similar to the angiogram.

	<b>Angiogram</b>	<b>Percutaneous Coronary Intervention (PCI)</b>
Preparation Instructions	See pages 3 to 6	See pages 3 to 6
When you are in hospital	See page 7	See page 7
During the procedure	See page 8	See page 8 and in addition: <ul style="list-style-type: none"> <li>• you will receive IV anticoagulants (blood thinners)</li> <li>• a PCI treatment will be done (i.e. stent placement)</li> </ul>
After the procedure: <ol style="list-style-type: none"> <li>1) Sheath removal</li> <li>2) Clamp time</li> <li>3) Bedrest after the clamp</li> <li>4) When you can eat</li> </ol>	See pages 9 to 12 plus: <ol style="list-style-type: none"> <li>1) in the lab</li> <li>2) less than 15 mins.</li> <li>3) up to 1 hour</li> <li>4) after 1 hour</li> </ol>	See pages 9 to 12 plus: <ol style="list-style-type: none"> <li>1) 4 hours after the lab</li> <li>2) up to 1 hour</li> <li>3) 4 to 6 hours</li> <li>4) 2 hours after the clamp is off</li> </ol>

### 3. Coronary Artery Bypass Surgery (CABG)

- ◆ This is a type of heart surgery. It is sometimes called CABG.
- ◆ The surgery reroutes or “bypasses” blood around clogged arteries to improve blood flow and oxygen to the heart.
- ◆ Surgeons take a segment of a healthy blood vessel from another part of the body and make another route around the blocked part of the coronary artery.
- ◆ It involves an incision in the breastbone and about 4-6 days in the hospital.

## Community and other Resources

### Cardiac Education

- ◆ **Heart and Stroke Foundation of Canada**  
www.heartandstroke.ca  
(also follow links to BC & Yukon section for local programs)  
1-888-473-4636
- ◆ **St. Paul's Hospital Heart Centre**  
www.providencehealthcare.com/info\_services\_health\_cardiac.html
- ◆ **St. Paul's Hospital Healthy Heart Program**  
www.healthyheart.org  
604-806-8591
- ◆ **www.heartbc.ca**  
follow link to "Community Heart Health Database"
- ◆ **Becel Canada**  
www.becelcanada.com  
1-800-563-5574  
Meal planning to eat heart healthy and risk factors of heart disease.

### Stop Smoking

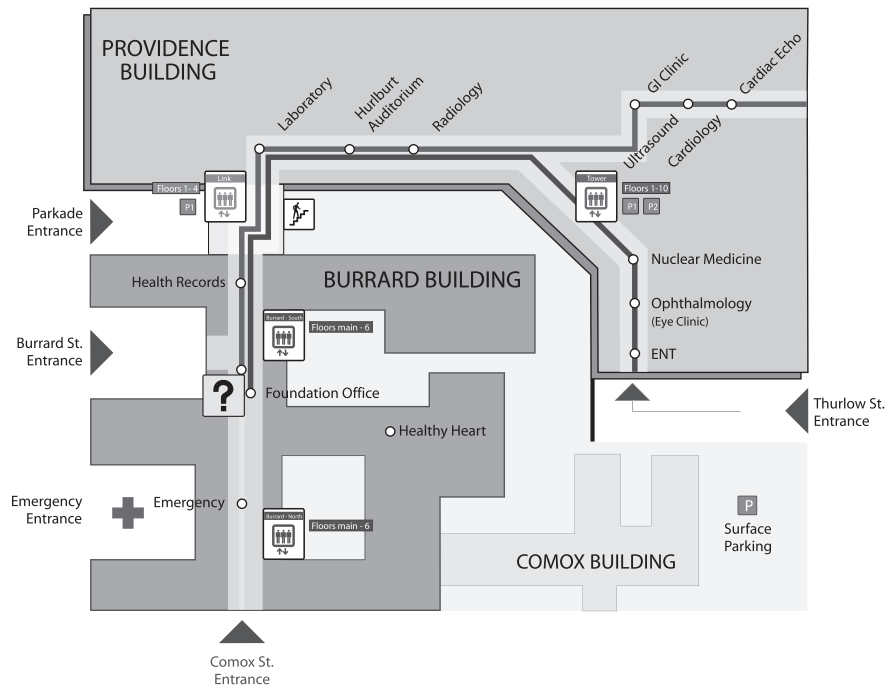
- ◆ **B.C. Lung Association: Freedom from Smoking**  
www.bc.lung.ca  
1-800-665-5864  
604-731-5864
- ◆ **Quit Now By Phone**  
1-877-455-2233  
24 hours/day, 100 languages spoken
- ◆ **Vancouver Coastal Health Authority**  
www.vch.ca - click on "Healthy Living"
- ◆ **B.C. Lung Association: Quit Now**  
http://bc.quitnet.com
- ◆ **St. Paul's Hospital Healthy Heart (Smoking Cessation) Program**  
604-806-8591
- ◆ **Health Canada: Go Smoke Free**  
www.gosmokefree.com  
1-866-318-1116  
The facts about health effects, second hand smoke, toxic emissions, quitting and the tobacco industry.
- ◆ **Chinese Stop Smoking Helpline**  
1-888-566-5864  
Mandarin and Cantonese service
- ◆ **Canadian Lung Association**  
1-888-566-5864  
www.lung.ca
- ◆ **Canadian Cancer Society: Fresh Start**  
1-888-939-3333  
www.cancer.ca



## Directions and Maps

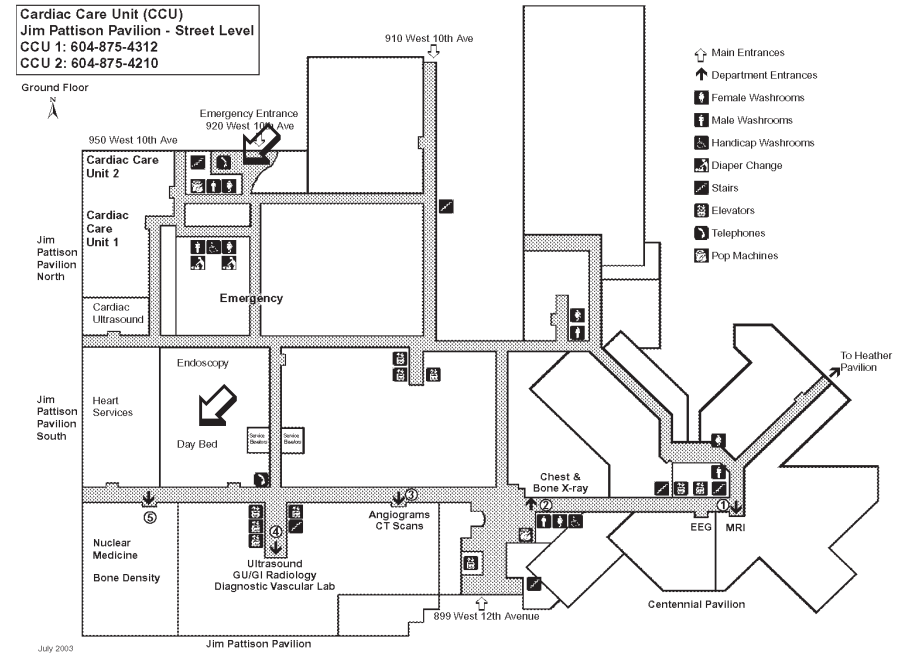
### St. Paul's Hospital Heart Centre Cardiac Short Stay and Outpatient Clinics

- ▶ Follow the blue line to the West Elevator (Providence Building) or take elevators from Parkade
- ▶ Take elevators to 5th floor (5C) - Cardiac Short Stay & Outpatient Clinics
- ▶ Report to Reception



### Vancouver General Hospital Cardiac Services

- ▶ The booking clerk will give you directions on where to report when they call you with an appointment date.



For more copies, go online at <http://vch.eduhealth.ca> or email [pchem@vch.ca](mailto:pchem@vch.ca) and quote Catalogue No. **EC.300.P919**  
© Vancouver Coastal Health, February 2006

The information in this document is intended solely for the person to whom it was given by the health care team.  
[www.vch.ca](http://www.vch.ca)